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SOME FLORIDA FERNS.—*Acrostichum aureum*, L. Gathered from a salt water creek twenty miles south of St. Augustine, the only locality of which I know as being any where near St. A. The fronds grow from a root-stock which is permanently in the water, and were just far enough from the steep slippery wire-grass-covered bank to make them hard to obtain. I could not reach them, so managed in this way: one of my companions seated herself on the ground behind me as I sat on the edge of the bank, and grasped my dress firmly with one hand, while with the other she took good hold upon a well-rooted Palmetto bush growing a little back of her. My other friend used a ten-foot pole to poke the ferns within my reach, and I grasped frond after frond by its tip, cut it off as low down as I could reach with my big knife and tossed it over my shoulder, not daring to turn my head to see where it went lest I should lose my balance. Just below me was the deep creek, whose quiet muddy waters were the home of *alligators*, and I did not wish to get too close to the creatures! The fronds are from three to ten feet high, generally in salt marshes or creeks, very seldom growing elsewhere. When Mr. J. Warren Merrill was here, he said (if I remember rightly), that this fern would grow well in his greenhouse, but did not fruit. Might not the absence of salt water account for this? Season of fruiting from August to September, perhaps longer. This *Acrostichum* is easily killed by frost, and the severe weather during the past winter killed the Halifax River fronds, and, I presume, those in my locality, though I have been unable to learn about it yet. The stipes are very succulent, sometimes over an inch in diameter at base. I think my estimate is very moderate, but naturally I could not pay much attention to stipes from any elevated situation when collecting!

Polypodium incanum, Swz. is a hardy little sprite and makes its home on the ground, on trees and on roofs of old houses. This fern is very common on Live Oak and Hickory trees, and I have one from an orange tree. I think fruited fronds may be found at any season. Their ordinary length is from two to six inches. While botanizing near Daytona, Fla., some time ago, I collected some specimens from a prostrate log which were so large that my first thought was of *P. vulgare*, which I have never seen in Florida. When growing on

houses, the *incanum* makes clumps or masses, from the snarling of the root-stocks, I suppose. It is usually called the "Resurrection fern" because it dries up, and then freshens again when wet. I used to be very much interested in watching an old roof which was partially covered with it. In dry weather it was as neutral tinted as any other old shingle-roof, but after a shower, it showed a bright fresh green fern-garden!

Polypodium pectinatum, L. is well established on the banks of a deep, wide ditch at Daytona. This ditch or "canal" was made to drain a hummock land a half mile or more back from the river, and is well shaded by the underbrush and large trees growing all around. The *P. pectinatum* fronds fruit sometimes when only two inches in length, but generally they are from 6-33 inches long and heavily fruited. I have found them growing on old logs, but, except one plant at the base of a tree-trunk, never on *living* trees. On the contrary, as far as I know, *P. Plumula* grows ordinarily upon live trees; I have never seen it upon the ground, and only once on a prostrate log. My specimens of *P. pectinatum* are all from the Halifax river. I have lately learned of a locality about twenty-six miles south of St. A., which I hope to visit this summer.

P. Plumula, Willd. possesses the same power of drying and freshening, that the *P. incanum* has. I find it difficult to keep the color of this little fern, as it is apt to turn brown within a few weeks after pressing. Although I have had a hundred and twenty or more fronds, I have not yet gathered a score of fruited ones, and judge that fertile fronds are scarce. In drying up on the trees, the incurved pinnae of *P. incanum* fold face to face so as to bring the smooth upper surfaces together, while the frond shows a decided tendency to curl up from tip toward base. This position makes the scurfy-scaled under sides of the pinnae very marked, and the little fern is quite comical in its entirely *shut-up* aspect. The *Plumula* fronds are very curious in their dried-up state. The rachis takes a backward bend above the middle as if to prepare for coiling; this curve, ending in the recurved tip of the frond, is strongly suggestive of the graceful curve of the swan's neck. Each pinna rolls up tightly from its tip toward the rachis, making about three turns; the under side with its dark midrib is thus brought into notice. In opening, the pinnae nearest the base unroll first, continuing up the stalk.

The *P. Plumula* grows on living trees in deep forests about fourteen miles west of St. Augustine. It may be common, but I have never found it anywhere else, excepting one plant which I saw in the In-

dian river country. Possibly this very habit of drying up may be the reason why it is not often seen. The fronds are from 2 to 15 inches long, and 1 to $1\frac{1}{2}$ broad.

Polypodium aureum, L. This fern is more common than *P. Plumula* or *P. pectinatum*, growing on the trunks of Cabbage Palmetto trees. It is found near St. Augustine, and on the banks of the St. Johns, Halifax and Indian rivers. It is scarce about St. A. because these fires in the woods, so terrible to a botanist, burn off everything growing on the trunks of trees, but do not necessarily destroy the trees. The country people are in the habit of setting the pine barrens on fire so that the fresh green grass may spring up for pasturage. This is nice for the cattle, but miserable for the plants. The fern fruits at all sizes; some of my specimens are but 6 inches long, some are from 3-4 feet. The handsome brown chaffy root-stock is very thick, and often shows the scars from which the old fronds have fallen. From this I judge that the stipe is articulated with the root-stock. This is a very beautiful majestic fern, and though "associated always with the Cabbage Palmetto" when wild, it bears very well to be planted in the fernery or flower-pot. It seems to be a very slow grower; some root-stocks planted in this way were three or four months in putting out their first leaves, but afterwards grew much faster. I was much interested last December while at Daytona, in collecting the different forms and gradations of the *P. aureum* from the delicate simple frond up through the once or twice lobed shapes, till at last the perfect frond appeared. Sometimes these grew on separate root-stocks, sometimes all upon one. These first forms are much more delicate and thinner than the perfect ones. Some mature fronds showed very emarginate tips of the pinnae, whereas they are usually very acute. Occasionally a lower pinna is plainly one or two lobed, and sometimes specimens show double rows of fruit-dots.

Polypodium Phyllitidis, L. I never found this fern north of the Indian river, and saw but little of it there. It grew on old decayed logs in deep rich woods. The fronds often show a tendency to develop one or two lobes, or to have wavy outlines. A few weeks ago a letter from Mr. F. A. White, who lives on the Indian river, called my attention to the fact that on old fronds of *Phyllitidis* new fruit-dots were appearing after the old ones had dropped off. This led to an examination of my own living plants, and I found several fronds had the rows of little round dots showing where last season's sori had been, and were now putting on fresh white dots directly over the old ones! This was a fern practice with which I was entirely unacquaint-

ed. and which surprised me very much. The fronds which are acting in this queer way are old mature fronds of last year.—MARY C. REYNOLDS.

A MICHIGAN TRILLIUM.—Five or six years ago, I found a single *Trillium*. The petals were white with a greenish stripe through the center, obovate-mucronate in outline. The plant seemed specifically different from other members of this genus, but, search failing to reveal any more, I considered it, for some time, as merely a curious sport—a sort of *lusus naturæ*. The next year I found more of them, and have continued to find more or less every year since. Several of my friends have also met this plant in their collecting. I am now inclined to think it is rather widely distributed in Michigan; and the facts I have gathered concerning it seem worth recording.

The typical form of this plant is about the size of *T. grandiflorum*, Salisb., blossoms at the same time, and is sometimes found growing with it. The leaves are broadly-ovate, acuminate-pointed, and resemble those of *T. grandiflorum*, but are long-petioled; the petals are large, obovate-mucronate, white with a narrow or wide green stripe; the ovary is green, elongate, tapering into the styles, and round, or obscurely three-sided; the ovules are sometimes 12 in number, but generally less, often none, or only one or two, the cavity being filled by an enlarged placenta.

I have not raised plants from the seed, nor can I say, positively, whether it matures seeds. My impression is that the plant fruits sparingly.

The variations from the common form are quite remarkable. Specimens have been found with leaves not distinguishable from those of *T. grandiflorum*; others, with leaves reduced to mere stubs, $\frac{1}{3}$ – $\frac{1}{4}$ of an inch long. Sometimes two leaves of the whorl will be thus reduced, and the other, of normal size and shape. Often the leaves are entirely wanting, in which case the calyx is generally larger and performs the function of leaves. Flowers showing all sorts of grades between the typical form and genuine *T. grandiflorum* also occur. Individuals with the white petals and six-angled ovary of the latter in connection with long petioled leaves have been seen; also, forms with sessile leaves, six-angled ovary, and greenish, green-striped, or wholly green petals; also, green-striped petals and elongate ovary—not angled—along with sessile leaves. The shape of the petals varies, and they are, indifferently, smooth or wavy. As before stated, when the stem is leafless, the calyx is commonly enlarged to take the